Application No. 10/723,889
Amendment Dated 10/06/2006
Reply to Office Action of 07/07/2006

Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the current application.

Listing of Claims:

Claims 1-30 (canceled)

Claims 31-60 (new):

31.) (new) An interactive performance interface for use with an audio system that generates at least one audio signal, said interactive performance interface coupleable to a first and second user-input control device, and including at least one performance mode comprising;

interaction rate data generation functions for generating first interaction rate control data responsive to user operation of said first user-input control device and for generating second interaction rate control data responsive to said second user-input control device, and

at least one interactive control envelope means for synthesizing an interaction rate signal including interaction rate attack data and interaction rate release data,

said interactive control envelope means including at least a first latch for synthesizing at least one of,

(i) a first logic state of said interaction rate attack data upon activation of said latch responsive to a specified first logic state of said second interaction rate control data, always conditional upon prior selection of said latch responsive to a specified first logic state of said first interaction rate control data, wherein prior to said activation, logic state of said

interaction rate attack data unconditionally persists responsive to said selection, and whereupon said activation, said first logic state of said interaction rate attack data unconditionally persists responsive to a change of logic state of at least one of said first and second interaction rate control data,

(ii) a first logic state of said interaction rate release data upon deactivation of said latch responsive to a specified first logic state of said second interaction rate control data, always conditional upon prior deselection of said latch responsive to a specified first logic state of said first interaction rate control data, wherein prior to said deactivation, logic state of said interaction rate release data unconditionally persists responsive to said deselection, and whereupon said deactivation, said first logic state of said interaction rate release data unconditionally persists responsive to a change of logic state of at least one of said first and second interaction rate control data, and

(iii) a first logic state of said interaction rate release data upon activation of said latch responsive to a specified first logic state of said second interaction rate control data, always conditional upon prior selection of said latch responsive to a specified first logic state of said first interaction rate control data, wherein prior to said activation, logic state of said interaction rate attack data unconditionally persists responsive to said selection, and whereupon said activation, said first logic state of said interaction rate release data unconditionally persists responsive to a change of logic state of at least one of said first and second interaction rate control data,

wherein said interactive control envelope means synthesizes said interaction rate signal responsive to said interaction rate control data such that said audio signal at least initiates a phrase responsive to said interactive control envelope, and such that said phrase may be effected by user operation of said first and second user-input control devices.

32.) (new) The interactive performance interface of claim 31, wherein said interaction rate data generation functions include a

function for counting present first logic states of at least said
first and second interaction rate control data;

 wherein said function generates additional interaction rate
control data consisting of,

 a first logic data generated responsive to a transition from a
count of zero, to a count of a first specified number greater than
zero, of said present first logic states, and

 a second logic state generated responsive to a transition from a
count of a specified number, to a count of zero, of said present
first logic states.

33.) (new) The interactive performance interface of claim 31,
wherein said interaction rate data generation functions include a
function for counting repeat changes from a first logic state to a
second logic state of one of said first and second interactive
rate control data, representing user operation of one of a
corresponding said first and second control operators, and

 for resetting said count to zero, responsive to a change from a
first logic state to a second logic state of the other of said
first and second interaction rate control data, said reset
representing a change of user operation from one to the other of
said user-input control devices;

 wherein said function for counting generates additional
interaction rate control data consisting of,

 a first logic state generated responsive to a transition from a
count of zero, to a count of a specified number, of said changes
of logic state, and

 a second logic state generated responsive to said reset from a
count greater than zero, to a count of zero, of said changes of
logic state.

34.) (new) The interactive performance interface of claim 31,
wherein said interactive control interface is implemented in at
least one device selected from a group comprising (i) an outboard
accessory for use with music synthesizers, (ii) a controller that

includes hardware operators, (iii) an interface layer built into a computer chip, and (iv) a stand-alone music workstation.

35.) (new) The interactive performance interface of claim 31 wherein said interactive control envelope further includes at least a second latch for synthesizing interaction rate signal data upon activation of said second latch responsive to a specified logic state of interaction rate control data, always conditional upon prior selection of said second latch responsive to a specified logic state of at least one of (i) interaction rate attack data, (ii) interaction rate release data, and (iii) interaction rate continuation data;
  wherein prior to said activation, logic state of said interaction rate signal data unconditionally persists responsive to said selection.

36.) (new) The interactive performance interface of claim 31, wherein said performance mode is includes a mode of operation selected from the group comprising (i) Line Mode, (ii) Channel Mode, (iii) Fingered Mode, and (iv) Operator Mode.

37.) (new) The interactive performance interface of claim 31 that includes data protocol compatibility selected from a group consisting of, (i) said first detection means inputs OSC compatible data, (ii) said interaction rate control data is OSC compatible, (iii) said interaction rate signal is OSC compatible, (iv) said electronic audio system is OSC compatible.

38.) (new) The interactive performance interface of claim 31 wherein said interactive control means enables user interaction to effect at least one element of said phrase selected from the group comprising (i) duration of notes, (ii) variations in accents of notes (iii) dovetailing of instrumentation, (iv) layered audio signals, (v) doubling of tones, (vi) orchestration, (vii) expansion of chords, (viii) transposition of chords, (ix) inversion of chords, and (x) ornamentation.

39.) (new) The interactive performance interface of claim 31, further including a harmony-interval means for generating at least one harmony-interval data selected from a group comprising (i) data that conforms to a harmonization scheme, (ii) calculated interval relationships, (iii) calculated deselection data, and (iv) data that maps to another parameter than pitch.

40.) (new) The interactive performance interface of claim 31 wherein said interactive control interface includes at least one control rate signal generation means for generating control rate signal data responsive to said interaction rate signal, wherein at least one parameter of said control rate signal is determined responsive to at least one of (i) a note selection, and (ii) control operator activation.

41.) (new) A method of providing an interactive performance interface for an electronic audio system, including at least one performance mode comprising the steps of:
  (a) generating first interaction rate data responsive to user operation of a first user input-device
  (b) generating second interaction rate data responsive to user operation of a second user-input devices,
  (c) synthesizing an interaction rate signal, including interaction rate attack and release data generated responsive to activation and deactivation of a first latch, by steps including at least one selected from the group consisting of
     (i) synthesizing a first logic state of said interaction rate attack data, upon activation of said latch responsive to a specified first logic state of said second interaction rate control data, always conditional upon prior selection of said latch responsive to a specified first logic state of said first interaction rate control data, wherein prior to said activation, logic state of said interaction rate attack data unconditionally persists responsive to said selection, and whereupon said activation, said first logic state of said interaction rate attack

data unconditionally persists responsive to a change of logic state of at least one of said first and second interaction rate control data,

(ii) synthesizing a first logic state of said interaction rate release data, upon deactivation of said latch responsive to a specified first logic state of said second interaction rate control data, always conditional upon prior deselection of said latch responsive to a specified first logic state of said first interaction rate control data, wherein prior to said deactivation, logic state of said interaction rate release data unconditionally persists responsive to said deselection, and whereupon said deactivation, said first logic state of said interaction rate attack data unconditionally persists responsive to a change of logic state of at least one of said first and second interaction rate control data, and

(iii) a first logic state of said interaction rate release data upon activation of said latch responsive to a specified first logic state of said second interaction rate control data, always conditional upon prior selection of said latch responsive to a specified first logic state of said first interaction rate control data, wherein prior to said activation, logic state of said interaction rate attack data unconditionally persists responsive to said selection, and whereupon said activation, said first logic state of said interaction rate release data unconditionally persists responsive to a change of logic state of at least one of said first and second interaction rate control data,

(d) generating an audio signal at least initiating a phrase responsive to said interaction rate signal whereby said phrase may be effected responsive to said first and second user-input control devices.

42.) (new) The method of claim 41 further including the steps of,

(a) counting present first logic states of at least said first and second interaction rate control data,

(b) generating additional interaction rate control data consisting of,

first logic data generated responsive to a transition from a count of zero, to a count of. a specified number greater than zero, of said present first logic states, and

second logic state generated responsive to a transition from a count of a specified number, to a count of zero, of said present first logic states.

43.) (new) The method of claim 41, further including the steps of,

(a) counting repeat changes from a first logic state to a second logic state of one of said first and second interactive rate control data, representing repeat user operation of one of corresponding said first and second user input control operators,

(b) resetting the count to zero, responsive to a change from a first logic state to a second logic state of the other of said first and second interaction rate control data, said reset representing a change of user operation from one to the other of said user-input control devices, and

(c) generating additional interaction rate control data consisting of a first logic state responsive to a transition from a count of zero, to a count of a specified number, of said changes of logic state, and a second logic state responsive to said reset from a count greater than zero, to a count of zero, of said changes of logic state.

44.) (new) The method of claim 41, wherein said method is embodied in at least one device selected from the group comprising (i) an outboard accessory for use with music synthesizers, (ii) a controller that includes hardware operators, (iii) an interface layer built into a computer chip, and (iv) a stand-alone music workstation.

45.) (new) The method of claim 41, further including the step of generating interaction rate signal data upon activation of a second latch, responsive to a specified logic state of interaction rate control data, always conditional upon prior selection of said second latch responsive to a specified logic state of at least one

of (i) interaction rate attack data, (ii) interaction rate release data, and (iii) interaction rate continuation data.

46.) (new) The method claim 41, wherein said performance mode includes a mode of operation selected from the group comprising (i) Line Mode, (ii) Channel Mode, (iii) Fingered Mode, and (iv) Operator Mode.

47.) (new) The method claim 41, wherein at least one of steps (a), (b), (c) and (d) include OSC compatible data.

48.) (new) The method of claim 41 that further includes the step of effecting at least one element of said phrase selected from the group comprising (i) duration of notes, (ii) variations in accents of notes (iii) dovetailing of instrumentation, (iv) layered audio signals, (v) doubling of tones, (vi) orchestration, (vii) expansion of chords, (viii) transposition of chords, (ix) inversion of chords, and (x) ornamentation.

49.) (new) The method of claim 41 that further includes the step generating harmony-interval data selected from the group comprising (i) data that conforms to a harmonization scheme, (ii) calculated interval relationships, (iii) calculated deselection data, and (iv) data that maps to another parameter than pitch.

50.) (new) The method of claim 41 that further includes the step of generating at least one control rate signal responsive to said interaction rate signal, wherein at least one parameter of said control rate signal is determined responsive to at least one of (i) a note selection, and (ii) user operation of a continuous control operator.

51.) (new) A processor readable medium whereon is stored a routine implementing a performance mode that upon execution by a processor will perform the following steps:

(a) generate first interaction rate data responsive to user operation of a first user input-device

(b) generate second interaction rate data responsive to user operation of a second user-input devices,

(c) synthesize an interaction rate signal, including interaction rate attack and release data generated responsive to activation and deactivation of a first latch, by steps including at least one selected from the group consisting of,

(i) synthesizing a first logic state of said interaction rate attack data, upon activation of said latch responsive to a specified first logic state of said second interaction rate control data, always conditional upon prior selection of said latch responsive to a specified first logic state of said first interaction rate control data, wherein prior to said activation, logic state of said interaction rate attack data unconditionally persists responsive to said selection, and whereupon said activation, said first logic state of said interaction rate attack data unconditionally persists responsive to a change of logic state of at least one of said first and second interaction rate control data,

(ii) synthesizing a first logic state of said interaction rate release data, upon deactivation of said latch responsive to a specified first logic state of said second interaction rate control data, always conditional upon prior deselection of said latch responsive to a specified first logic state of said first interaction rate control data, wherein prior to said deactivation, logic state of said interaction rate release data unconditionally persists responsive to said deselection, and whereupon said deactivation, said first logic state of said interaction rate attack data unconditionally persists responsive to a change of logic state of at least one of said first and second interaction rate control data, and

(iii) a first logic state of said interaction rate release data upon activation of said latch responsive to a specified first logic state of said second interaction rate control data, always conditional upon prior selection of said latch responsive to a

specified first logic state of said first interaction rate control
data, wherein prior to said activation, logic state of said
interaction rate attack data unconditionally persists responsive
to said selection, and whereupon said activation, said first logic
state of said interaction rate release data unconditionally
persists responsive to a change of logic state of at least one of
said first and second interaction rate control data,

(d) generate an audio signal at least initiating a phrase
responsive to said interaction rate signal whereby said phrase may
be effected responsive to said first and second user-input control
devices.

52.) (new) The processor readable medium of claim 51 whereon is
stored said routine that upon execution by said processor will
further perform the following steps:

(a) count present first logic states of at least said first and
second interaction rate control data,

(b) generate additional interaction rate control data consisting
of,

first logic data generated responsive to a transition from a
count of zero, to a count of a specified number greater than zero,
of said present first logic states, and

second logic state generated responsive to a transition from a
count of a specified number, to a count of zero, of said present
first logic states.

53.) (new) The processor readable medium of claim 51 whereon is
stored said routine that upon execution by said processor will
further perform the following steps:

(a) count repeat changes from a first logic state to a second
logic state of one of said first and second interactive rate
control data, representing repeat user operation of one of
corresponding said first and second user input control operators,

(b) reset the count to zero, responsive to a change from a first
logic state to a second logic state of the other of said first and
second interaction rate control data, said reset representing a

change of user operation from one to the other of said user-input control devices, and

(c) generate additional interaction rate control data consisting of a first logic state responsive to a transition from a count of zero, to a count of first specified number, of said changes of logic state, and a second logic state responsive to said reset from a count greater than zero, to a count of zero, of said changes of logic state.

54.) (new) The processor readable medium of claim 51 wherein said routine executable by said processor is implemented as at least one of, (i) a software upgrade for existing synthesizers, and (ii) personal computer based synthesis software.

55.) (new) The processor readable medium of claim 51 whereon is stored said routine that upon execution by said processor will further perform the step of generating interaction rate signal data upon activation of a second latch, responsive to a specified logic state of interaction rate control data, always conditional upon prior selection of said second latch responsive to a specified logic state of at least one of (i) interaction rate attack data, (ii) interaction rate release data, and (iii) interaction rate continuation data.

56.) (new) The processor readable medium of claim 51, whereon is stored said routine wherein said implemented performance mode includes a mode of operation selected from the group comprising (i) Line Mode, (ii) Channel Mode, (iii) Fingered Mode, and (iv) Operator Mode.

57.) (new) The processor readable medium of claim 51 whereon is stored said routine that upon execution by said processor will perform at least one of steps (a), (b), (c) and (d) to include OSC compatible data.

58.) (new) The processor readable medium of claim 51 whereon is stored said routine that upon execution by said processor will further perform the step of effecting at least one element of said phrase selected from the group comprising (i) duration of notes, (ii) variations in accents of notes (iii) dovetailing of instrumentation, (iv) layered audio signals, (v) doubling of tones, (vi) orchestration, (vii) expansion of chords, (viii) transposition of chords, (ix) inversion of chords, and (x) ornamentation.

59.) (new) The processor readable medium of claim 51 whereon is stored said routine that upon execution by said processor will further perform the step of generating harmony-interval data selected from the group comprising (i) data that conforms to a harmonization scheme, (ii) calculated interval relationships, (iii) calculated deselection data, and (iv) data that maps to another parameter than pitch.

60.) (new) The processor readable medium of claim 51 whereupon is stored said routine that upon execution by said processor will further perform the step of generating at least one control rate signal responsive to said interaction rate signal, wherein at least one parameter of said control rate signal is determined responsive to at least one of (i) a note selection, and (ii) user operation of a continuous control operator.